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MUSIC LEAF TURNER.

APPLICATION FILED AUG. 6, 1912.

1,059,445.

Patented Apr. 22, 1913.

3 SHEETS—SHEET 1.

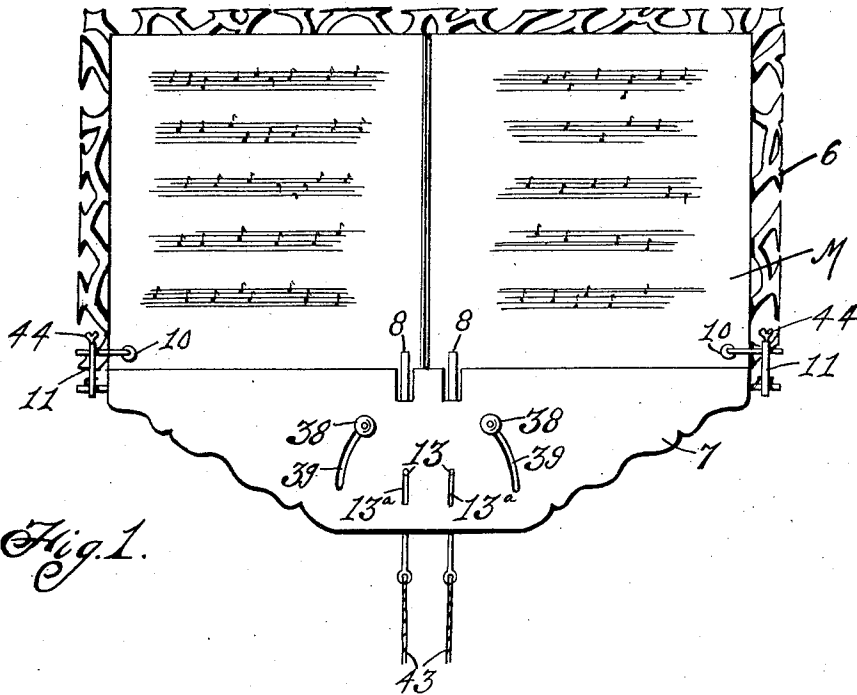


Fig. 1.

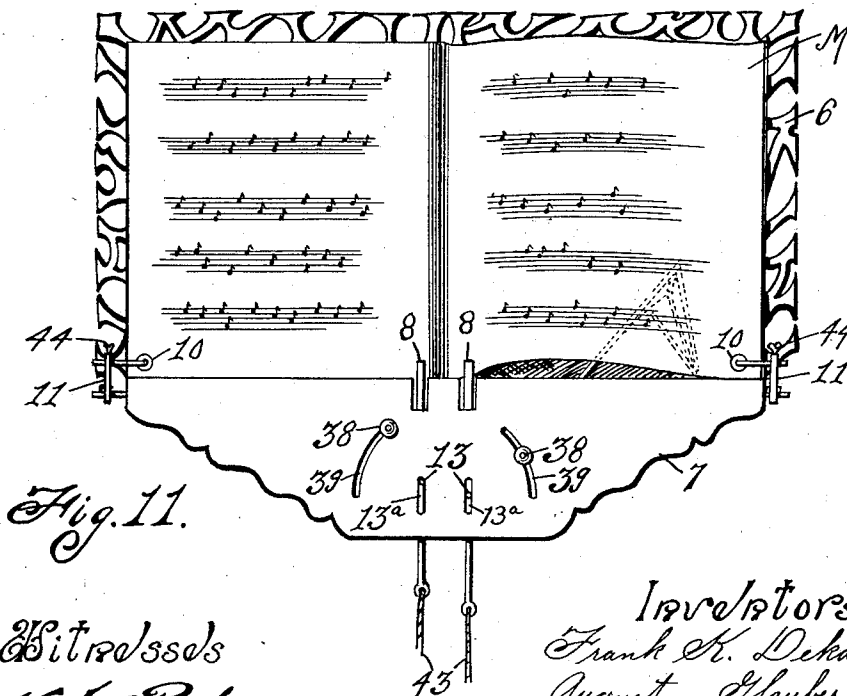


Fig. 11.

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3 SHEETS—SHEET 2.

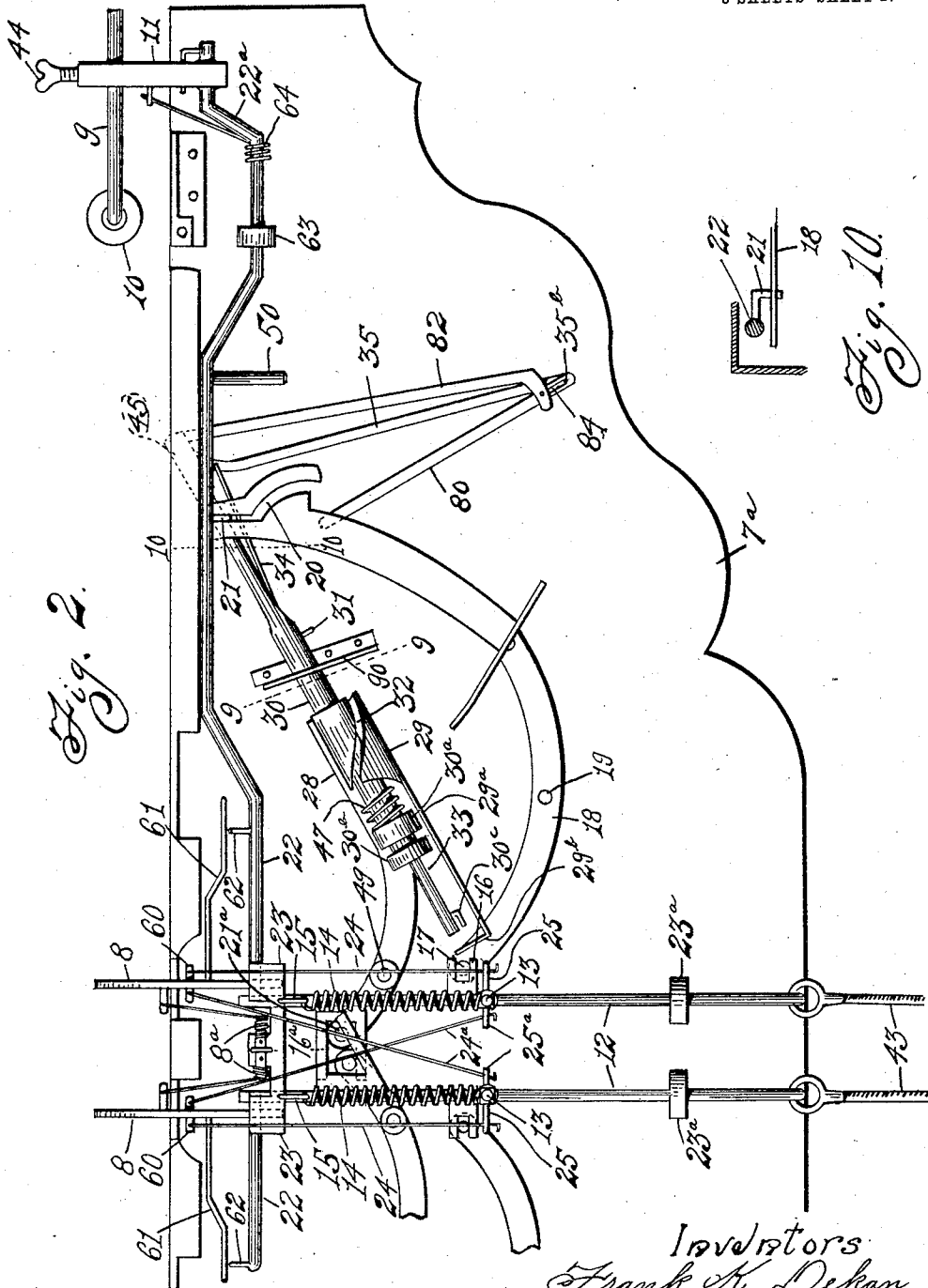


Fig. 2.

Fig. 10.

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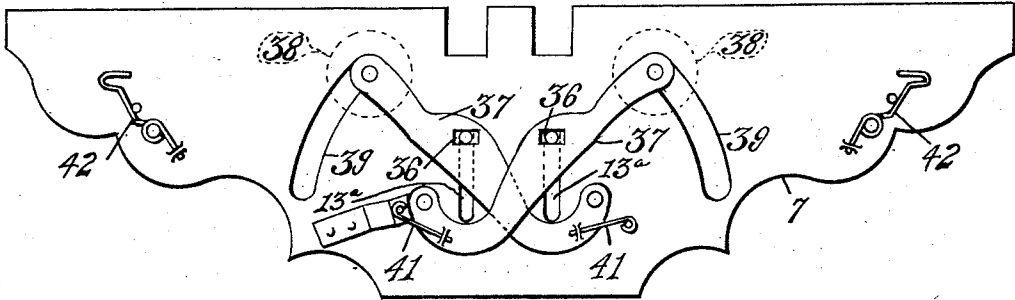


Fig. 3.

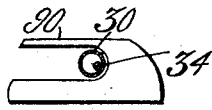


Fig. 9.

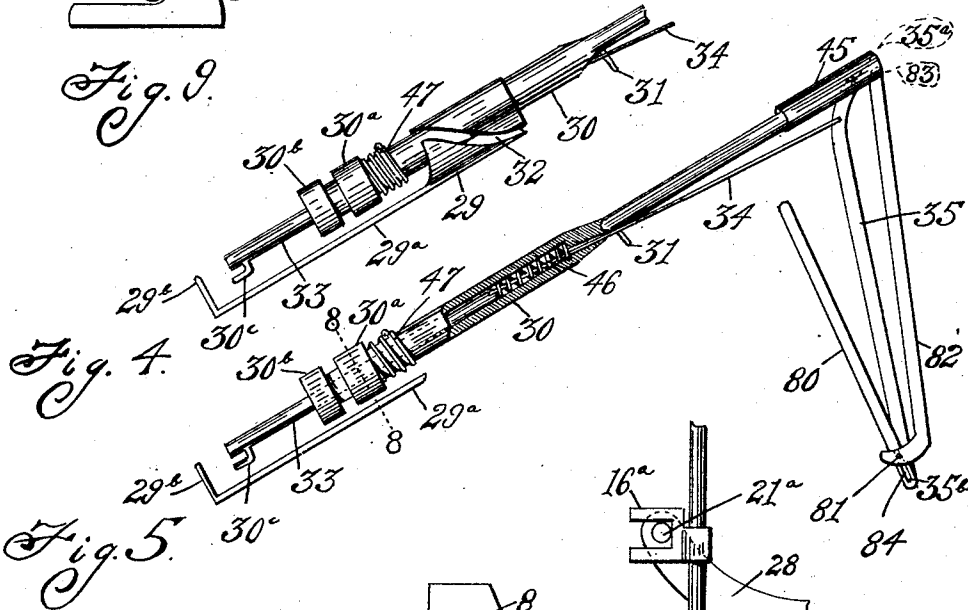


Fig. 4.

Fig. 5.

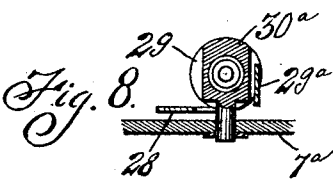


Fig. 8.

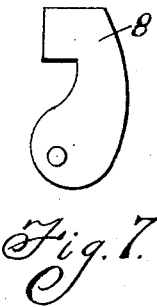


Fig. 7.

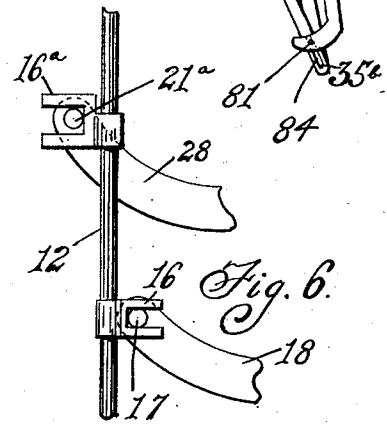


Fig. 6.

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UNITED STATES PATENT OFFICE.

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MUSIC-LEAF TURNER.

1,059,445.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRANK K. DEKAN, a subject of the Emperor of Austria-Hungary, and AUGUST GLAUBER, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Music-Leaf Turners, of which the following is a specification.

10 This invention relates to music leaf turners, and has for its object to provide improved means for turning successive sheets of music or the like, the sheets being turned either way, in succession, by devices forming parts of the invention.

15 The apparatus includes means for retaining or holding the sheets down except when the turner is operated; means for buckling or bending up a page or sheet, and means for inserting a swinging arm under the sheet so buckled and turning the same over to the opposite side, the parts then resuming the original position for the next operation.

25 In the accompanying drawings,—Figure 1 is a front elevation of the device applied to a music rack. Fig. 2 is a partial plan view of the mechanism, the upper plate of the casing, and the operating levers attached thereto, being removed. Fig. 3 is a plan view showing the underside of the top plate of the casing, with the operating levers thereon. Figs. 4 and 5 are details of one of the arms by operation of which the leaf is turned. Fig. 6 is a detail of one of the operating rods and connections. Fig. 7 is a detail of one of the catches which hold the sheet down except when the device is operated. Fig. 8 is a section on the line 8—8 of Fig. 5. Fig. 9 is a section on the line 9—9 of Fig. 2. Fig. 10 is a section on the line 10—10 of Fig. 2. Fig. 11 is a front view similar to Fig. 1, but with the operating devices in the act of turning a leaf.

45 Referring specifically to the drawings, 6 is the rack for holding the music or book. The operating mechanism is inclosed in a casing fixed to the lower edge of the rack, said casing comprising a front plate 7 and a back plate 7^a supported and spaced a sufficient distance apart to contain therebetween the operating devices. The devices at each side are duplicates of each other, except that they are reversed so that either may be operated to turn the leaves either backward or forward. The parts being

duplicates, a description of one "side" of the mechanism will apply to both. The front plate 7 is slotted as at 39, and the operating knobs 38 are connected by pins 60 through these slots to the right and left operating levers 37 which are of angular shape as shown in Fig. 3 and which are normally pressed upwardly by springs 41. The front plate is also slotted as at 13^a, and pins 13 65 projecting from sliding rods 12 extend into these slots which form guides for the up and down movement of the pins. These pins also extend through slots 36 in the levers 37, so that when a lever is pushed down the corresponding rod 12 is also pushed 70 down. Either rod may also be pulled down by means of a cord 43 which may be extended to a treadle (not shown) if desired.

Each rod 12 is slidable up and down in 75 guide brackets 23 and 23^a projecting from the back plate 7^a, and is normally pulled up by a spring 14 connected at one end to a hook 15 on the lug 23 and at the other end to the pin 13. By the movement of these 80 rods the various parts are actuated.

8 is a finger pivoted on the bracket 23 and projecting upwardly through a slot in the top of the casing so as to press against the music leaf M at one side, as shown in 85 Fig. 1. This finger may be swung outwardly or forwardly to release the leaf. Normally it is pressed backwardly against the leaf by a spring 8^a. A wire 24 is connected at one end to a pin 60 on the finger, 90 and at the other end to a lug 25 projecting from the rod 12. The finger is also similarly connected by a wire 24^a to a lug 25^a on the opposite rod 12, so that when either rod 12 is pulled down, both of the fingers 8 are 95 swung forwardly or outwardly from the music leaves so as to release the same, allowing the right hand leaf, for example, to be turned over to the left, and after the leaf is turned and the rod 12 is released and 100 pulled up by the spring 14 the fingers 8 swing back again against the leaves to hold them down in place. This therefore is a catch and release mechanism for holding the leaves open and for releasing the same 105 at proper times to be turned. It should be explained the pivot for the finger 8 is formed by the end of a rod 22, forming part of the mechanism for buckling the sheet preparatory to turning the same, said 110 rod 22 being slidable lengthwise through a suitable bearing in the bracket 23. A crank

arm 61 projects from one side of the finger 8 and is adapted to strike a pin 62 projecting from the rod 22, so that when said finger is swung forwardly to release the leaf the crank 61 strikes the pin 62 and turns the rod 22 to a certain extent. The purpose of this is to lift the rubber pad 10 (which is used to buckle the sheet) from contact with the sheet, so that the sheet may be turned.

The rod 22 turns and slides in the bracket 23 at one end and in a bracket 63 at the other end, and at its outer end it has a crank 22^a to which is fixed an arm 11 carrying a finger 9 which may be adjusted in and out and held by a set screw 44, to accord with the size of the music sheet. The arm 11 projects above the top of the casing. A spring 64 normally presses the arm 11 toward the music sheets, so that the rubber pad 10, at the inner end of the finger 9, presses against the music sheet, that is, against the leaf which is to be turned. The leaf is buckled by shifting the rod 22 inwardly, and when this is done the finger 10 pushes up said leaf or buckles the same so that the leaf turning arm shown in Fig. 5 may enter under the same and turn said leaf, the pad 10 being simultaneously released by the operation of the crank 61 as above described.

In order to insure that the pad 10 will perform its work a spring 42 is provided which is fastened to the top plate 7 and projects inwardly in such position that a pin 50, projecting from the rod 22, will enter under and be pressed by said spring, thereby tending to turn the rod 22 so as to press the pad 10 tightly against the leaf. The rod 22 is shifted inwardly by means of a bent lever 18 pivoted at 19. This lever has at its outer end an irregular slot 20 into which projects a curved pin 21 projecting from the rod 22. At its other end, the lever 18 has a pin 17 which works in a slot in a fork 16 fixed to the rod 12, as clearly shown in Fig. 6. When the rod 12 is pulled down the fork 16, by pressure against the pin 17, swings the lever 18 on its pivot 19, and the pressure of said lever against the pin 21 slides the rod 22 inwardly or to the left (assuming that the right hand device is operated) and this action causes the pad 10 to buckle the sheet, and the pin 21 being curved on the proper radius will swing in the slot 20 to the extent necessary to permit the rod 22 to be turned at the end of the buckling operation, to lift the pad 10 from the sheet as above described.

The sheet being thus buckled, the leaf turning device is operated. A bent lever 28 is fulcrumed at 49 on the back plate 7^a and at one end it has a pin 21^a which projects between the branches of a fork 16^a

fixed on the rod 12, so that when said rod is moved up and down, said lever is swung on its pivot. At its opposite end, said lever carries a collar or casing 29 having a spiral cam slot 32. This collar or casing extends around a sleeve 30 within which is a sliding rod 33 which is reduced for a portion of its length within the sleeve 30, and a spring 46 is coiled around said reduced part and normally presses the rod 33 downwardly or outwardly. The collar 29 has an extending arm 29^a the end 29^b of which is bent to position behind the lower end of the rod 33. The sleeve 30 turns in a swivel guide or bearing 30^a pivotally mounted on the back plate 7^a, as shown in Fig. 8. A collar 30^b confines the sleeve 30 in the bearing on one side, and on the other side a coiled spring 47, connected between the bearing and the sleeve, acts to turn the sleeve backwardly to normal position, said backward turn being stopped by a finger 30^c which strikes the arm 29^a. The sleeve 30 has a projecting pin 31 which is adapted to enter the cam slot 32 when the part 29 is slid forwardly along the sleeve, and the movement of the pin in the slot causes the sleeve and the parts carried thereby to turn forwardly against the tension of the spring 47. The sleeve 30 is slotted along its outer end, and a wire 34 extends through this slot, connecting the rod 33 and a lever or finger 35 which is pivoted at 35^a to a fixture 45 on the end of the sleeve. The lever 35 is pivoted at 35^b to another finger 80 which is connected by a pin 81 to the end of a third finger 82 which is pivoted at 83 to the fixture 45. The pin 81 extends through a slot 84 in the finger 80. These three fingers are spread or operated by movement of the rod 34. When said rod is pushed out it swings the finger 35 on its pivot 35^a and also swings the finger 82 on its pivot 83, and variation in the position of said pivots causes the finger 80 to swing outwardly on its pivot 81, in consequence of the thrust or slight longitudinal movement of the finger 82 with respect to the finger 35, thereby "spreading" the finger 80 and also swinging out the other fingers so as to give broad bearing under the leaf, the fingers at this time being under or behind the leaf which is being turned.

When the lever 28 is swung upwardly on its pivot the first action is to swing the sleeve 30, the rod 33 and the fingers carried thereby, upwardly, said parts turning with the swivel bearing 30^a. This throws the upper end of the sleeve, carrying the fixture 45 and the fingers, between the upper leaf and the rest of the book, and the rod 33 being pushed up through the sleeve 30 causes the fingers 35, 80 and 82 to swing up and spread, said rod 33 being pushed upwardly by the offset 29^b pressing against the end thereof. Further outward movement of the

casing 29 along the sleeve 30 causes the pin 31 to enter the cam slot 32, and, the motion being continued, the travel of the pin in said slot turns the sleeve 30, thereby throwing over or turning the leaf under which the fingers are engaged. The movement of the lever 28 is produced by pulling down on the rod 12, as above stated. When said rod is released and returns the lever 28 swings back and the slotted casing 29 retracts along the sleeve 30, and as soon as the pin 31 leaves the slot, the spring 47 returns the fingers to the plane of movement necessary to cause the same to swing back into the casing, between the plates 7 and 7^a; and at the same time the spring 46 pushes back the rod 33 and folds up the fingers, all the parts returning to the position shown in Fig. 2; and they are ready for the next operation.

To more effectually guide the movement of the swinging sleeve 30 it enters a slotted guide 90 when it swings back.

As above described, the operative parts are duplicated at each side of the casing, so that by the operation of one or the other the leaves may be turned from right to left or vice versa.

It is thought that the operation of the device will be evident from the above description, but to briefly describe the same it may be stated that when one of the rods 12 is pulled down the first action is to shift the rod 22 toward the middle, or inwardly, by the action of the lever 18. The pad 10, carried by the arm projecting from the said rod, buckles the leaf against which it presses. Next, the sleeve 30 is swung up carrying the head 45 into the recess under the buckled part of the leaf, and at the same time the catches 8 are lifted, thereby releasing the leaf, and when they are so lifted the pad 10 is also lifted by operation of the crank 61. Meanwhile the fingers 35, 80 and 82 are carried up under the leaf and are spread out, and finally, when the rod 12 is pulled down to the limit, the pin 31 enters the cam slot 32 and the sleeve 30 turns which swings the fingers forwardly or over and turns the leaf. The rod 12 is pulled down by operation of the corresponding knob 38 and lever 37, the motion of the lever being communicated to the rod by the pin 13. After the leaf is turned the parts assume original position, the rod being pulled up by the spring 14 and the other parts being turned back to normal position by springs connected thereto as above described.

It is to be understood that the invention is not limited to the particular mechanism described, but various modifications may be made within the scope thereof.

What we claim is:

1. In a music leaf turner, the combination of means to buckle a leaf, a swinging and

rotatable member provided with projecting fingers and adapted to enter under the leaf when it is buckled, means to swing said member, and means to partly rotate said member on its longitudinal axis and swing the fingers carried thereby after they are inserted under the leaf.

2. In a music leaf turner, the combination of means to buckle a leaf, a rotatable and swinging leaf turning member, means to swing said member to enter the same under the leaf so buckled, and means to turn said member on its longitudinal axis after it is so entered, to rotate the leaf.

3. In a music leaf turner, the combination of means to buckle the leaf, a swinging sleeve, a finger pivoted at the end thereof, a sliding rod in the sleeve and connected to the finger to swing the same in or out, an operating lever provided with means to advance the rod and swing the finger out when the sleeve is entered under the leaf, and means actuated by the lever to turn the sleeve and swing the finger carried thereby after it is entered under the leaf.

4. In a music leaf turner, the combination of a sliding rod and means to operate the same, means to buckle a leaf, operatively connected to the rod, a pivotally mounted leaf turning device rotatable on its longitudinal axis and adapted to be swung under a leaf so buckled and to be thereafter turned to turn the leaf, and a lever operatively connected between the rod and said leaf turning device, said lever being provided with a cam acting on said device and adapted to turn the same.

5. In a music leaf turner, the combination of an operating lever provided with a casing containing a cam slot, a sleeve rotatable and slidable in said casing and provided with a pin which enters the cam slot to turn the sleeve when the casing is slid along the same, a pivoted support for the sleeve, whereby it may be swung under a leaf to be turned, and a finger projecting from the end of the sleeve and adapted to be entered under the leaf, said finger acting to turn the leaf when the sleeve is turned.

6. In a music leaf turner, the combination of an operating lever provided with a casing at one end having a cam slot, a pivotally mounted swinging sleeve on which the casing is slidable lengthwise, said sleeve having a pin adapted to enter the slot and turn the sleeve when the casing is advanced along the same, a finger pivoted to the end of the sleeve, a rod slidable in the sleeve and connected to the finger to swing the same in or out, and a projection extending from the casing to position behind the rod and adapted to advance the rod and swing the finger out when the casing is advanced along the sleeve.

7. The combination of a pivoted catch

adapted to engage and hold a leaf, an operating member connected to said catch to lift the same, a sliding rod provided with a crank and a pad connected to said crank and
5 adapted to engage a leaf to buckle the same when the rod is slid in one direction, a lever between said operating member and the rod to slide the latter, a crank connection between the catch and the rod to turn the latter and lift the pad from the leaf after the
10 catch is released, and a swinging leaf turning device operatively connected to said operating member and adapted to enter under the leaf and turn the same after the leaf is
15 buckled.

8. In a music leaf turner, a leaf turning device comprising a swinging member adapted to be swung under a leaf, a plurality
20 of fingers carried by said member and pivotally connected together and adapted to expand and contract, means to swing said member, and means connected to the fingers to expand the same when the member is

swung under the leaf, and to retract the same when the member is withdrawn. 25

9. In a music leaf turner, the combination of a swiveling bearing, a leaf turning member rotatable in said bearing and provided with projecting fingers at its outer end, a spring tending to turn said member in one
30 direction, a lever operatively connected to the member to swing the same on its pivoted bearing and thereby enter the same under a leaf, and a cam device carried by the lever and engageable with said member and con- 35
structed to turn the member on its axis and thereby turn the leaf, after it is swung under the leaf.

In testimony whereof, we do affix our signatures in presence of two witnesses.

FRANK K. DEKAN.
AUGUST GLAUBER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."